

NAVAL BASE VENTURA COUNTY

FY16 CHIEF OF NAVAL OPERATIONS ENVIRONMENTAL AWARD SUSTAINABILITY – TEAM



INTRODUCTION

Naval Base Ventura County (NBVC) is located along the Pacific coastline in Ventura County, California. The base is comprised of three primary operating facilities: Port Hueneme, Point Mugu, and San Nicolas Island (SNI). Point Mugu and Port Hueneme are both located along the Pacific coastline in southwestern Ventura County, California, adjacent to the cities of Oxnard, Port Hueneme and Camarillo. NBVC also maintains operations at various remote sites, such as Laguna Peak, Fort Hunter Liggett and Santa Cruz Island.

Point Mugu consists of 4,500 acres, including Laguna Peak, and is bordered by parkland, wildlife reserves and intensively farmed agricultural lands. The primary runway at Point Mugu is 11,000 feet (ft) by 200 ft. The secondary runway is 5,500 ft by 200 ft. Port Hueneme covers more than 1,600 acres and has more than 29 miles of roads, 10 miles of railroad track and a deep water port. SNI is approximately 13,370 acres, 8.7 miles long by 4 miles wide and lies in the Santa Barbara Channel 74 miles west of Los Angeles. SNI also has a runway, which is 11,000 ft by 200 ft.

NBVC provides airfield, seaport and base support services to fleet operating forces and shore activities and employs more than 20,060 military and civilian personnel. These personnel work under 80 departments and/or supported commands all of whom support the diverse missions of the Department of Defense (DOD). NBVC Tenant commands encompass a diverse set of specialties that support both Fleet and Fighter, including three warfare centers: Naval Air Warfare Center Weapons Division, Naval Surface Warfare Center Port Hueneme Division and Naval Facilities Engineering and Expeditionary Warfare Center. NBVC is also home to deployable units, including the Pacific Seabees and the West Coast E-2C Hawkeyes.



Aerial view to the SW of the Port Hueneme deep water port. This port is the only deep water port between Los Angeles and San Francisco.



An aerial view to the NW showing NBVC Point Mugu. NBVC Port Hueneme is located approximately 5.6 miles to the NW.

Recreational activities at NBVC include camping, bird watching, surfing, and fishing. Recognizing the ecologically significant biodiversity of the Point Mugu estuary, NBVC has made environmental stewardship and continuing protection of coastal wetlands an integral part of its mission

TEAM MEMBERS

The NBVC Sustainability Team consists of 6 key members:

- Dan Shide: Installation Environmental Program Director (IEPD)
- David Martin Macias: Installation Energy Manager
- Shirin Tolle: Environmental Management Systems (EMS)
- Chad Lousen: Environmental Planning Lead
- Rebecca Martinez: Environmental Planner
- Valerie Vartanian: Wetlands and Pesticides Program Manager



BACKGROUND

NBVC's Environmental Management System (EMS) is the fundamental mechanism for standardizing the methods and processes used to evaluate and address environment impacts at Point Mugu, Port Hueneme and SNI. Critical to implementing EMS at NBVC are the 148 designated Environmental Coordinators (ECs) from 61 tenant organizations and commands. Under the NBVC EMS, ECs are responsible for EMS conformance within their organization in addition to environmental compliance. ECs are an effective, cost-effective force multiplier for NBVC's environmental compliance programs and sustainability practices. Quarterly Environmental Management Committee (EMC) meetings are the primary forum for EC training and outreach. In 2016, the NBVC EMS expanded the scope of EMC meetings to include not only training in regulatory compliance but lectures and presentations from subject matter experts in Safety, Emergency Management, Hazardous Materials, Conservation and Sustainability.

The NBVC EMS observes, documents and audits NBVC operations and practices with potential impacts to environmental aspects and coordinates closely with tenant ECs on training and best practices. NBVC's Internal Assessment Plan (IAP) ensures that all facilities/operations are evaluated, root causes for environmental noncompliance are addressed and opportunities to further NBVC sustainability and pollution prevention (P2) goals are identified. The IAP and the results of the annual internal audit provide a full accounting of NBVC's progress, lessons learned and opportunities to improve. For FY15-FY16, the three highest ranked aspects at NBVC were Hazardous Substances/Materials Management, Energy/Water Conservation, and Recycling.

SUMMARY OF ACCOMPLISHMENTS

ENVIRONMENTAL MANAGEMENT SYSTEM

During the 2016 internal audit, the opportunity for ECs to be directly involved was significant. EC volunteers from four tenant organizations provided over 50 volunteer hours as well as a breadth of knowledge in chemistry, lab practices, safety and operations. Participation by the EC volunteers allowed NBVC to expand the scope of the internal audit to include the evaluation of sustainability and P2 practices.

Preliminary results from the FY16 annual internal audit documented 6 tenants with new energy conservation practices, 7 tenants who successfully substituted less toxic or non-toxic materials for an authorized hazardous material, 2 tenants who implemented a new standard operating practice (SOP) for water conservation. These audit results show that NBVC tenant organizations have a high awareness of recycling and are proactive in implementing P2 and conservation practices. An audit Plan of Action & Milestone (POAM) has been developed to provide tenant commands with information and support on funding mechanisms for conservation and renewable energy projects.

RENEWABLE ENERGY:

In 2015, installation of seven of nine proposed 100kilowatt (kW) wind turbines was completed on SNI. The seven wind turbines currently now operational are anticipated to generate approximately 30% of SNI's power needs at full operation, save an estimated 24,332 million British thermal units (MBTU) of energy per year, and result in a reduction of 1,360 metric tons per year of carbon dioxide. The direct energy and utility cost savings associated with decreased operations and fuel consumption at the SNI power plant are estimated to be \$1.07 million dollars per year.

Renewable energy on SNI provides cascading positive environmental benefits. Fossil fuels must be transported to SNI via a 7 hour barge trip. Used oil must be shipped back to the mainland as hazardous waste. Based on 2016 data the wind turbines will reduce the frequency of barge fuel shipments from every six weeks to 8 weeks and reduce hazardous waste shipments by 25%.



This photo shows seven of the installed 100 KW wind turbines installed on SNI. The turbines came on line in 2016.

In 2016, NBVC completed NEPA review for a NAVFAC Renewable Energy Program Office (REPO) 6 megawatt (MW) solar photovoltaic (PV) facility combined with a 4.5 MW battery storage system. Forty-four acres within a closed landfill at Port Hueneme will be leased to UniEnergy Technologies (UET) for the project. Once built, this system will normally provide renewable energy to the grid but will switch over to power critical facilities at NBVC Port Hueneme during power outages.



Island fox shown appreciating the benefits of renewable energy on SNI

CONSERVATION

NBVC has consistently exceeded the conservation goals set under Executive Order (EO) 13423 and the Navy Region Southwest Energy and Water Strategy. EO 13423 required DOD utilities to report energy and water consumption for facilities under their control and compare usage to previously established annual baselines. In 2015, NBVC reported a 32% reduction in energy intensity from the FY03 baseline, and a 16% reduction in annual water usage from the FY07 baseline.

In 2015, EO 13693 superseded EO 136423 with a revised conservation goal requiring a 25% reduction in water and energy use by 2025. NBVC is well on its way to realizing these goals. In 2016, NBVC completed energy conservation projects that realized a total energy reduction of 3,586 MBTU's with an associated cost avoidance of \$123,000. NBVC water conservation measures in 2016 decreased consumption by 22% from the 2007 baseline year saving 85 million gallons and \$382,000 in water supply costs. NBVC's water conservation achievement exceeded the FY15 reduction by 6%.

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

In 2016 NBVC won the following awards that demonstrate full commitment and leadership in furthering the Navy Region Southwest Energy and Water Strategy including:

- The Federal Energy and Water Management Award for Projects
- The Secretary of the Navy (SECNAV) Energy and Water Management Blue Level Award for energy and water conservation.

In FY15 and FY16, NBVC incorporated conservation measures into new construction, renovations and repairs at Port Hueneme, Point Mugu and SNI using NAVFAC's Sustainment, Restoration, and Modernization for Energy (SRMe) contract vehicle. The following building projects highlight NBVC's commitment to conservation.

In 2015, renovations to the Triton Unmanned Aircraft Systems Training Command (Triton) targeted goals including sustainability, energy efficiency and minimal maintenance. The design incorporated Navy energy conservation guidelines and Leadership in Energy and Environmental Design (LEED) New Construction (NC) ratings to include the use of recycled and local materials such as aggregate, cement, rebar and joint sealers. Key energy sustainability features incorporated into the Triton building design that will provide the model for future renovation projects at NBVC include:

- Design and installation of building lighting that will achieve near net zero energy use by utilizing solar tubes coupled with occupancy sensors and dimmable light fixtures throughout the high bay, hallways and office space. The design provides maximum lighting and minimal electric use with a lighting power density of 0.78 watts/square feet which is more than 30% of ASHRAE 90.1 compliance.
- Installation of an HVAC system with 94% high efficiency boilers.
- Installation of a domestic hot water system with variable frequency drives controlled through a building automation system. Temperature set points adhere to the Navy high efficiency standards policy including full commissioning for the building.

The successful completion of the Triton project resulted in 279,740 MBTU in annual energy savings with a cost avoidance of \$11,000 annually.

Another FY16 noteworthy achievement in energy and water efficiency was completion of the new Fleet Readiness Center (FRC) Aircraft Engine Test Facility at Point Mugu. The original 67 year old test pads on Beach Road were highly deteriorated creating inefficiencies in testing the T56 engines used for the E2C Hawkeye and C-2A Greyhound aircraft. The new Test Facility was relocated approximately ¼ mile inland from the beach and expanded to an area of 3,973 square feet with a test pad area of 34,014 square feet.

The new Test Facility combined sustainable LEED rated design features including high efficiency light fixtures, renewable solar tubes and low flow water conservation fixtures. The successful completion of the FRC Aircraft Engine Test Facility provided NBVC with the lowest practical lifecycle cost savings of 44,783 MBTU annually with a cost avoidance of \$ 2,000 dollars annually.

ENERGY CONSERVATION - LIGHTING UPGRADES

Lighting upgrades at NBVC have continued to be a low cost, fast payback effort to improve efficiency and reduce overall usage. In FY16, 17 buildings with a total area of 443,000 square feet were identified with inadequate and high energy consuming light fixtures. With the execution of the SRMe contract, the old inefficient light fixtures were replaced with high efficiency fluorescent fixtures with special dimmable ballast and lighting control capability. The ballast with Demand Flex lighting controller and occupancy sensors are pre-set during start up at a 30% lesser foot-candle level to reduce energy use and are capable of operating with demand flex schedules during load reduction as requested by Southern California Edison. The successful completion of the \$619,934 lighting upgrade will result in a simple payback of 4.5 years based on rebate savings of \$110,000 and annual energy and cost savings of 3,586 MMBTU and \$136,688 respectively.

WATER CONSERVATION

In FY15 and FY16 NBVC water conservation was achieved through renovation of existing structures, new construction standards and implementation of water-wise procedures. The following are just a few of the projects and measures that have allowed NBVC to reduce water consumption 22% from the 2007 baseline.

In FY15 retrofit of aging and inefficient water fixtures with low flow high efficiency faucets, showers and toilets was completed at SNI resulting in potable water savings of 934, 000 gallons per year.

In FY16 a new water-wise control procedure for identifying and repairing water main leaks was implemented that includes immediate steps to close water main valves to save water. During early 2016 a significant increase in water use at Point Mugu was reported that threatened NBVC water use reduction efforts. The NBVC Public Works Department took immediate action and identified the leak as originating at an isolated water main located in a heavily vegetated and unused area at Point Mugu not easily accessible to visual inspection. The leak was quickly repaired and service restored saving thousands of gallons of water.

Another FY16 water-wise measure reduced the water used for flushing fire hydrants to maintain regulatory requirements for safe drinking water. A base-wide analysis of potable water pipelines determined the total volume of water and minimum number of flushes needed to maintain potable water quality. Based on the analysis, the number of flushing events was reduced and meters were used to control discharge volumes.

ENVIRONMENTAL PLANNING

Incorporating sustainability into project execution begins in the planning stages. In order to sustain mission readiness, NBVC has four goals when reviewing proposed projects: (1) Ensure all projects are in compliance with the National Environmental Policy Act (NEPA); (2) Ensure projects are in compliance with all health, safety, security and planning regulations and requirements; (3) Ensure stewardship of natural and cultural resources and (4) Promote sustainability practices, measures and processes. NBVC utilizes a Project Review Board (PRB) to achieve these goals led by the NBVC Environmental Division and including NBVC specialists in fire prevention, air operations, industrial hygiene, safety, security, water/energy management and other disciplines. The PRB has led to the successful preparation of over 600 CATEXs from FY15 to FY16. During the 2016 external compliance audit, NAVFAC SW highlighted the NBVC PRB as a “best practice” for NEPA.

In FY15 and FY16 Findings of No Significant Impact (FONSI) signed for Final Environmental Assessments (EA) at NBVC with significant sustainability components included:

- Port Hueneme Biodiesel Expansion Project; March 31, 2015
- REPO Port Hueneme Solar Photovoltaic Systems; August 13, 2015; EA Addendum, June 13, 2016
- Multi-Base Alternative Energy Photo Voltaic Power Purchase Agreement (PPA) for Port Hueneme building PH-1388 carport photo-voltaic project; February 11, 2016
- SNI Directed Energy Test Facilities; April 5, 2016
- Point Mugu Shoreline Protection Repair and Enhancements; signed April 11, 2016
- Assessment and Restoration Plan for 2011 Omega 707 Air Tanker Crash Point Mugu; June 6, 2016

SHORELINE PROTECTION PLAN

In FY15 and FY16 NBVC implemented its innovative Shoreline Protection Plan (SPP) for the coastal facilities at NBVC Point Mugu. The SPP was developed to provide a strategy to sustainably control erosion and nourish the existing beach at Point Mugu to protect both mission critical facilities and natural resources.

The SPP included a comprehensive plan for coastal protection including short and long term projects developed by Navy experts and contractors with expertise in coastal processes and waterfront facilities. The following are key components of the SPP:

- Implementation of managed retreat of threatened facilities where feasible
- Incorporation of managed retreat into the NBVC Master Plan currently under development
- Installation of sustainable beach erosion control projects on a priority basis

Under the SPP, managed retreat will be conducted on a project by project basis and at the end of the facility life cycle. In 2015, Fleet Readiness Center (FRC) Aircraft Engine Test Facility at Pt Mugu was the first of NBVC facilities located on an eroding shoreline to be sustainably relocated to an inland location.

Beach erosion control projects implemented in FY15 and FY16 include the installation of sand fencing to stabilize and build dunes at Point Mugu. The Point Mugu Shoreline Protection Repair and Enhancements EA signed in FY16 will support the next phase of SPP projects including expanding or enhancing the western and central revetments at Point Mugu. The EA planning process required public involvement, consultations and coordination with the California Coastal Commission (CCC), Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), National Marine Fisheries Service (NMFS) and others. The CCC determined that the EA required a Coastal Consistency Determination (CCD) and CCC concurrence. NBVC successfully obtained CCC concurrence during a public hearing which allowed finalization of the EA and FONSI. The projects proposed in the EA are planned for execution in early FY17.



Sand fencing at Point Mugu slows wind erosion and builds new beach dunes to protect inland infrastructure from storm events.

COASTAL RESILIENCE

The United States Department of Defense has identified climate change as a national security issue and a significant challenge to its ability to accomplish its mission. NBVC has recognized that protection of coastal resources requires innovative solutions and partnering with experts in coastal science and engineering.

“The base has joined with The Nature Conservancy to take the lead in preparing for climate change and rising sea levels proves once again that Ventura County’s largest employer is also one of its greatest stewards of the environment.” -Ventura County STAR

In a first-of-its-kind project, NBVC is partnering with The Nature Conservancy (TNC) to protect NBVC assets from future sea level rise. This is the first time the DOD has entered into a public-private partnership via a memorandum of agreement (MOA), signed in FY16, to protect one of its Navy installations from the effects of climate change. **This MOA currently addresses Point Mugu and Port Hueneme, and is expected to serve as a model agreement for other DOD installations in the future.**

Due to the dynamic nature of Point Mugu’s beaches, accurate mapping of coastal processes over time is critical. NBVC’s public-private partnership with the TNC’s Coastal Resilience Program allows data generated at NBVC to be provided as input to the TNC’s Coastal Resiliency Model. In turn, the Coastal Resiliency Model will allow NBVC to visualize the impacts on infrastructure and coastal features from different climate change scenarios. The goal is to assist NBVC in identifying infrastructure and coastal features at greatest risk as well

as planning for the protection and long term management of coastal infrastructure, dunes and wetlands. The NBVC coastal resilience project can potentially be replicated at other coastal DOD installations globally. In FY16, a National Public Radio Marketplace reporter took interest and interviewed NBVC and TNC at NBVC Point Mugu to highlight this innovative program.

Coastal resiliency at NBVC is closely coordinated with ongoing efforts to conserve natural resources using tools such as the Readiness and Environmental Protection Integration (REPI) program. Using REPI, NBVC has entered into an Encroachment Protection Agreement with the Trust for Public Land and the City of Oxnard to protect sensitive military and natural resource areas from urban encroachment. NBVC has also partnered under the REPI program with the TNC, California Coastal Commission (CCC) and the Ormond Beach task force to provide support for the Ormond Beach Wetland Restoration Project. Ormond Beach, located adjacent to and north of Point Mugu provides a buffer from urban development as well as habitat for special status species such as the snowy plover. REPI will provide cost-sharing for public-private partnerships that will protect NBVC's military test and training capabilities and conserve a vital Southern California coastal salt marsh wetland and dune system.

SUSTAINABLE LANDSCAPING

NBVC's Sustainable Landscaping Plan is implemented incrementally as projects go through the NEPA process including all projects going through the PRB process for CATEX. The most vital component of the Phase I Sustainable Landscaping Plan currently implemented at NBVC is the approved plant list. This list is used for all landscaping project reviews and includes mostly native and drought tolerant plants adapted to the Southern California coast. To encourage native vegetation, NBVC performs contracted and project specific removal of exotic invasive plant species.



Installation of water efficient irrigation controllers have resulted in significant reductions in water usage under drought conditions.

Water conservation for irrigation is part of sustainable landscaping at NBVC. All new or renovation projects with irrigation systems are required to replace existing sprinklers with efficient landscape irrigation. Larger irrigation systems must be operated by a Calsense 2000e irrigation controller in communication with the CNRSW irrigation central control system based at NAVFAC San Diego which adjusts irrigation based on need.

In 2015, NBVC Natural Resources staff commenced development of the Phase II Sustainable Landscaping Plan for Port Hueneme and Point Mugu. Phase II will provide a clear set of guidelines to reduce negative impacts such as the release of invasive species and costs by minimizing the need for maintenance. The plan will include the Sustainable Sites (SITES) credit rating, a LEED like credit system for sustainable landscapes adopted by the Green Building Council and implemented along with LEED for building sustainability.

COMMUNITY ENGAGEMENT

During the award period, NBVC actively coordinated on NBVC sustainability issues with the Calleguas Creek Watershed Task Force, Ormond Beach Task Force, Southern California Wetland Recovery Project – Ventura County Task Force, and the Western Snowy Plover / California Least Tern / Light-footed Clapper Rail working groups. NBVC also maintained an active Restoration Advisory Board (RAB) to facilitate community support on NBVC Installation Restoration Program (IRP) with members from the Navy, regulators, and the local community including the County of Ventura and the cities of Oxnard, Port Hueneme and Camarillo.